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ABSTRACT

The connectionist theory of brain functioning, which holds that specialization exists within the brain, has three implications for teachers of nonverbal communication. One implication involves the relative emphasis to be placed on linguistic/linear versus nonlinguistic/nonlinear mental processing. Teachers can shift emphasis to nonlinguistic processing by using John M. Weilgart's set of visual symbols to create images of abstract concepts instead of describing the concepts in words. Since verbal and nonverbal behaviors tend to be processed in different areas of the brain, another implication of connectionist theory is that nonverbal behaviors are not easily explained in linguistic terms, suggesting the need for less certainty in the interpretation of nonverbal behaviors. Teachers can demonstrate this by showing their classes videotapes of group discussions in which people display various moods through nonverbal characteristics. Students will probably confuse certain characteristics (tiredness-irritation, shyness-arrogance), thereby alerting them to the dangers of giving verbal labels to nonlinguistic behaviors. Finally, the connectionist theory implies a need to widen the definition of literacy. Teachers of nonverbal communication can offer experiences in visual literacy by using films, music, and tactile experiences to increase sensory awareness. These activities introduce students to the range of visual, aural, and sensory patterns that are integral parts of thinking and communicating. (RI)

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Brain Specialization Research and the Teaching of Nonverbal Communication

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The purpose of this paper is to suggest ways in which recent research into brain functioning can be applied to the teaching of nonverbal communication at the secondary and collegiate levels. The following ideas are offered in reference to either a unit or course in nonverbal communication.

Nonverbal communication is sometimes presented as a linguistic process. The common phrase "body language" implies that nonverbal communication is essentially an alternative linguistic system. The popular books by Julius Fast (Body Language,[1] The Body Language of Sex, Power, and Aggression[2]) have contributed to the assumption that all nonverbal behaviors can be translated into specific verbal equivalents, which can then be "read." Even sophisticated researchers (like Ray L. Birdwhistell) have contributed to this assumption. By creating a system of kinesic analysis which parallels linguistic analysis, Birdwhistell has influenced researchers and teachers to view nonverbal communication as an alternative language. Even Birdwhistell's attention to contextual variations in kinesic meaning still parallels the connotative properties of verbal language.[3]

Undoubtedly, many gestures, facial expressions, postural responses, (and certainly sign languages) do convey definite verbal messages. Ekman and Friesen use the term "emblems" to describe these silent linguistic forms.[4] F. E. X. Dance describes an emblem, such as the peace sign, as nonvocal communication because a precise verbal meaning is transmitted even though not vocalized.[5] In contrast--moods, sensations, and images are also transmitted between human beings, but these communicative forms are nonlinguistic (nonverbal as well as nonvocal). While Ekman and Friesen acknowledge the importance of emblems, they go on to identify

illustrators, adaptors, regulators, and affect displays.[6] These latter communicative behaviors include movements, facial expressions, eye behavior, vocal inflections, and spatial adjustments which cannot be fully translated into words. In addition, Susanne K. Langer describes communication forms used by painters, composers, and sculptors which are even further removed from verbal patterns; such forms are not alternative languages, but alternatives to language.[7]

These distinctions between nonvocal and truly nonverbal forms of communication are underscored by recent research into specialized functions of the brain. It appears increasingly probable that the conception and interpretation of emblematic communication engages the brain in a different way than the conception and interpretation of nonlinguistic patterns.

The development of neuropsychology during the past century has involved a continuing controversy between the mosaic theorists who claimed that functions of the brain are highly localized, and holistic theorists who maintained that the entire brain participates in all functions. The mosaic theory focused heavily on studies of brain damaged persons, and inferences from eye behavior. These studies supported the view that linguistic processing is done in the left hemisphere of the cerebral cortex, while nonlinguistic patterns are processed in the right hemisphere.[8] While the mosaic theorists discovered considerable evidence of localization and laterality of brain functions, the holistic theorists offered contrary evidence which suggested more complex cerebral interaction.[9]

Recently, a third set of researchers has postulated a connectionist theory. This theory holds that some brain functions are primarily laterally localized--but are nonetheless represented to a lesser degree in the other hemisphere.[10] Recent research supporting the connectionist theory does not rely on study of damaged brains. Lassen, Ingvar and Skinhøj have developed a means of measuring blood flow to various areas of the healthy brain. The concentration of blood

can be used to identify the part of the brain which is involved in a particular mental task.[11] The results of this method of observation cast doubt on the mosaic and holistic theories. The monitoring of blood flow indicates specialization of brain functions, but not exclusive localization. The connectionist theory supports the view that linear linguistic processing is usually a specialty of the left hemisphere while spatial, sensory, and aesthetic processing are specialities of the right hemisphere. This theory further acknowledges a lesser involvement of the opposite hemisphere and the reversal of some hemispheric specializations in some individuals--possibly related to left-handedness and other variables. It is also possible that more symmetry of brain functions exists in women than in men.[12] Nevertheless, the evidence is strong that linguistic processing and non-linguistic processing are never done in precisely the same parts of the cerebral cortex. When near symmetry exists in the hemispheres, it may mean that both hemispheres have sub-specializations; the parallel sub-areas specializing in verbal processing are still distinct from the parallel sub-areas specializing in visual/spatial/sensory processing.

The applications which follow in this paper are based on the connectionist theory that specialization exists within the brain, although not always along strict hemispheric lines. This research has several implications for teachers of nonverbal communication.

One implication involves the relative emphasis to be placed on the two kinds of mental processing. A unit or course that primarily emphasized linguistic parallels and emblematic communication would be limiting its attention to the specialization usually found in the left hemisphere. Langer compared the linear attribute of language--words strung out one after another--to clothes on a clothesline. This linear characteristic exists whether the emblems are vocalized

or not. In contrast, nonlinguistic forms are comparable to articles of clothing being worn one on top of another. In nonlinear forms of communication, several images or impressions can be conveyed simultaneously. A familiarity with these nonlinear patterns is prerequisite to the use and understanding of many mathematical and artistic forms.[13] Rudolf Arnheim noted that "the emphatic testimonies of great scientists and artists to the effect that their creative thinking does not consist in the manipulation of words must give pause to every educator."[14] Teachers of nonverbal communication are among the educators who can call attention to nonlinear, usually right hemisphere specializations.

A practical application for the classroom might be derived from John W. Weilgart's set of visual symbols. He has created an extensive set of symbols which are intended to be used and interpreted in a nonlinear manner.[15] Thus, instead of defining an abstraction like "hope" in a linguistic, linear way, a student could select from Weilgart's symbols to draw his/her image of hope. One person's image might appear like this:

Here the symbols for "toward" and "life" are used to convey the image of hope as movement toward a larger view of life. While this example may still appear linear, it incorporates a vertical variation is size simultaneously with the linear arrangement of symbols. Even less linear is one person's image of "freedom" expressed as:

Here the symbol for "above" is placed over the symbol for "condition"--thereby expressing an image of freedom as being above and free from conditions and conditioning. To share this concept with another person might require a verbal explanation to accompany the visual diagram. Nonetheless, the combination of images and words conveys the concept more vividly, concisely, and memorably than words alone. Don Fabun makes the same point by suggesting that a geometric configuration such as an icosahedron is most clear when visually illustrated as well as verbally explained.[16] D. A. Dondis concurs, and suggests numerous visual pairs (singularity/juxtaposition, symmetry/asymmetry, neutrality/accent, transparency/opacity, . . .) that have verbal definitions, but nonetheless must be seen to be understood.[17] The creation, transmission, and retention of the images suggested by Weilgart and others probably involves mental processes of both hemispheres; and their use allows human communicative abilities to be more fully engaged.

A teaching approach used by Jeanette Wright illustrates further ways of encouraging the conceptualization and communication of concepts in a nonlinear fashion. Wright asks students to draw impressions. The following example occurred in an elementary classroom, but the approach could be applied at higher levels of education. The teacher-student exchange begins with words, but proceeds to nonverbal communication.

> In one set of drawings, a student was asked to draw a picture of "jumping." He drew a crude trampoline and person. "What would it look like if the paint brush were jumping?" the teacher asked. The student started "jumping" the paint brush, and found it made "footprints" on paper. Then he started "running the paintbrush" around another sheet of paper, making more footprints.
>
> Getting the idea, he did a final drawing, dots on paper, circling around one another in long strings that really begin to run themselves. Looking at the paper, the viewer feels as if the dots are running. And indeed they were, when the student drew them.[18]

The process of achieving this kind of free form expression may take longer for high school and college students, because of their additional years of conditioning toward linguistic thinking. The nonverbal communication instructor can help older students move beyond that singular way of communication--toward an increased range of creative expression and appreciative reception.

A second implication for nonverbal communication instruction which follows from brain specialization research is less certainty in the interpretation of nonverbal behaviors. Some students approach the study of nonverbal communication expecting to learn to read the behavior of others--a highly left hemisphere aspiration. Such an intention is dubious even in regard to emblematic gestures since these behaviors include the same nuances and connotations which exist in each person's use of vocalized language. But the need to avoid hasty interpretations increases further in regard to nonlinguistic behaviors and expressions.

A practical way of demonstrating this in a classroom is to video-tape a group discussion in which group members are asked to display various moods or personal characteristics through their tones of voice, body postures, and facial expressions. Among the impressions to be conveyed might be tiredness, shyness, anxiety, illness, and sadness. Viewers of the video-tape can then be asked to interpret the behaviors--possibly choosing from a prepared list of alternative interpretations. It is probable that tiredness will often be confused with irritation, shyness with arrogance, anxiety with aggressiveness, illness with boredom, and sadness with disinterest. The point is that various moods or physical responses are expressed in similar ways and cannot be "read" with certainty. They do not have a single verbal translation. A viewer who makes wrong interpretations from this tape may be alerted to the dangers of giving verbal labels to nonlinguistic behaviors.

As a further means of discouraging hasty "reading," students might be asked to view and discuss examples of abstract art. Sometimes communication between the artist and viewer breaks down because the viewer is trying to associate verbal equivalents while the artist is trying to convey images or feelings. An example is Pablo Picasso's painting "Man Sitting in Chair." Many viewers have been frustrated because they could not see and verbally describe the man being portrayed. Such viewers were asking the left hemisphere question: what does it mean? Picasso eventually revealed that his intention was to paint what it feels like to be a man sitting in a chair. The viewer can only perceive Picasso's intention by asking a right hemisphere question: how does it feel?[19]

Some educators may find the advocacy of uncertainty to be heretical. Flannery O'Connor called this "a natural belief for a generation that has been made to feel that the aim of learning is to eliminate mystery."[20] But, in fact, learning should enable one to recognize and honor the unknown. Learning about human communication should foster sounder judgments and more appreciative responses to varied communication forms, but it does not and should not eliminate mystery. On the contrary, Mark L. Knapp correlates skilled reception of nonverbal communication with low dogmatism.[21] One goal of a nonverbal communication class should be to encourage recognition of the complexity of human expression. By seeking such understanding, a student can replace hasty certainties with cautious awareness. At that point, he/she becomes a genuine receiver instead of a reader of nonverbal communication.

Finally, the connectionist theory of brain specialization implies a need to widen the definition of literacy. The common definition of literacy is the ability to read and write. In other words, literacy in our culture is equated solely with linguistic abilities or left brain specialties. This cultural focus has been paralleled in education by teachers who assume that thinking requires words.

Yet, Arnheim argues that the "things we can describe in words are actually quite rare," and cites Albert Einstein's ability to "break free of the verbal definitions of time, space and light, that blinded other physicists."[22] It is not necessary to equate image perception with genius to recognize it as a frequently underdeveloped aspect of intelligence. Image perceptiveness is partially visual, and the acquisition of visual literacy has been described by John L. Debes.

> Visual literacy refers to a group of vision-competencies a human being can develop by seeing and at the same time having and integrating other sensory experiences. The development of these competencies is fundamental to normal human learning. When developed, they enable a visually literate person to discriminate and interpret the visible actions, objects, and symbols, . . . Through the creative use of these competencies, he is able to communicate with others. Through the appreciative use of these competencies, he is able to comprehend and enjoy the masterworks of visual communication.[23]

The teacher of nonverbal communication can offer experiences which contribute to visual literacy, and also help "integrate" aural literacy and sensual literacy into a combination which can reasonably be called nonverbal literacy. Toward this end, the following classroom activities are suggested.

Educational films which do not have a verbal, linear story-line can be used to demonstrate communication through imagery. Such films which are appropriate for both high school and college audiences include: Allures,[24] Art and Perception, Learning to See,[25] Ascent of Man #3: The Grain in the Stone,[26] Flatland,[27] Future Shock,[28] The Searching Eye,[29] Seven Arts,[30] and Why Man Creates.[31] These films are varied in purpose, but each provides experiences in nonlinear perception. The teacher who encourages appreciation of such experiences is contributing to visual literacy.

Unfamiliar instrumental music can be used to illustrate the moods and images which music conveys. In contrast, music for which lyrics are well known but not vocalized can illustrate the strong tendency to listen for linguistic

patterns. Thus, the distinction can be demonstrated between aural literacy (hearing the mood) and verbal literacy (recalling the words). The same point can be made by demonstrating the difficulty of hearing the sounds of one's own language. The sound glass is an unpleasant sound, but we fail to hear it because of the pleasing verbal associations of crystal, mirrors, and fine china. One way of helping a student hear the sound of the language is to ask him/her to vocalize a word over and over, or to say it very slowly until the sound itself emerges into consciousness. At that moment, a transition in brain processes may be occurring. Mario Pei recounts that Italian immigrants, verbally illiterate in English, associated the sounds of English with cats meowing.[32] Probably, these immigrants were processing the sounds in the nonlinguistic parts of their brains and were more aurally literate than most students whose native language is English. The beginning of aural literacy is awareness of what is not heard, and learning to listen for it. Such aural attentiveness can be encouraged in a nonverbal communication classroom.

Unusual and unlabeled taste and tactile experiences can be provided in the classroom to increase sense awareness. The interpretation of these unknown sensory experiences probably involves a different kind of cerebral processing than the same sensations evoke if the verbal labels are known. Thus, the experience of unlabeled sensations can contribute to sensual literacy, and may allow a more complete awareness of the experience than immediate verbal labeling would permit.

Classroom activities such as those described above will not, in themselves, create a nonverbally literate person--any more than a few linguistic exercises would make one verbally literate. But such activities can introduce to a student the range of visual, aural, and sensory patterns which are integral parts of thinking and communicating.

Nonverbal communication is still a relatively new area of study. Moreover, the relevance of the connectionist theory of brain specialization to nonverbal communication instruction is still in the early stages of exploration. In both theory and application, there are complexities of brain functioning which are still far from understood. As teachers of nonverbal communication, we have the special opportunity and responsibility to incorporate evolving knowledge into coursework. But we will teach best if we remember that our information derives not from the certainties of finished research, but the possibilities of research in progress. Susan Sontag reminds us "there are ways of thinking that we don't yet know about."[33]

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